CONTENT OF *FIELD CROPS RESEARCH*, VOLUME 21

VOL. 21 NO. 1 JUNE 1989

Productivity of species in cassava/maize/okra egusi melon complex mixtures in Nigeria
J.E.G. Ikeorgu (Umuahia, Nigeria), H.C. Ezumah (Ibadan, Nigeria) and T.A.T. Wahua (Port-Harcourt, Nigeria) 1
Phenological development of old and modern soybean cultivars under drought and irrigation
J.R. Frederick, J.T. Wooley, J.D. Hesketh and D.B. Peters (Urbana, IL, U.S.A.) 9
Phenotypic expression of a chlorophyll mutant in cowpea (*Vigna unguiculata*): Environmental influences and effects on productivity
W.R. Kirchhoff, A.E. Hall and W.H. Isom (Riverside, CA, U.S.A.) 19
Yield determinants of guar (*Cyamopsis tetragonoloba*). 1. Grain yield and pod numbers
D.F. Beech (St. Lucia, Qld., Australia), H. Stutzel (Stuttgart, Federal Republic of Germany) and D.A. Charles-Edwards (St. Lucia, Qld., Australia) 29
Yield determinants of guar (*Cyamopsis tetragonoloba*). 2. Nitrogen accumulation and growth at high plant density
H. Stutzel (Stuttgart, Federal Republic of Germany), D.F. Beech and D.A. Charles-Edwards (St. Lucia, Qld., Australia) 39
Effect of cutting height on the yield and straw quality of lentil and on a succeeding wheat crop
S.N. Silim, M.C. Saxena and W. Erskine (Aleppo, Syria) 49
Ear:stem ratio in old and modern wheat varieties; relationship with improvement in number of grains per ear and yield
K.H.M. Siddique (South Perth, W.A., Australia), E.J.M> Kirby (Nedlands, W.A., Australia) and M.W. Perry (South Perth, W.A., Australia) 59

Book Review
Crop Physiology in Czechoslovakia 79

Announcements 81

VOL. 21 NO. 2 1 JULY 1989

Growth and yield of cassava as influenced by intercropped soybean and by nitrogen application
J.S. Tsay, S. Fukai and G.L. Wilson (St. Lucia, Qld., Australia) 83
Base temperature for the application of the growing-degree-day model to field-grown alfalfa
B.S. Sharratt (Fairbanks, AK, U.S.A.), C.C. Sheaffer and D.G. Baker (St. Paul, MN, U.S.A.) 95
Effects of nitrogen and early irrigation on root development and water use by wheat on two soils
P.R. Gajri, S.S. Prihar and V.K. Arora (Ludhiana, India) 103
Effect of yellow-berry on field emergence of spring wheat
J.K. Ransom, S.R. Waddington and M. Osmanzai (Nairobi, Kenya) 115
Effect of photoperiod and temperature on leaf initiation rates in wheat (*Triticum* spp.)
F. Miglietta (Florence, Italy) 121
Grain growth and development of old and modern Australian wheats
S.P. Loss (South Perth, W.A., Australia), E.J.M. Kirby (Nedlands, W.A., Australia) 131

A method of describing the progress of apical development in wheat, based on the time-course of organogenesis
R. Delécolle (Avignon, France), R.K.M. Hay (Ayr, Great Britain), M. Guérif (Avignon, France), P. Pluchard (Mons-en-Chaussée, France) and C. Varlet-Grancher (Lusignan, France) 147

Short Communication

Effect of bordering soil surface moisture conditions on evaporation from soybean
W.A. Dugas and W.L. Bland (Temple, TX, U.S.A.) 161

Book Reviews

Cultivated rice 167
Rattoon rice 169

VOL. 21 NOS. 3,4 — 15 JULY 1989

Response of field-grown soybean to saturated soil culture, 1. Patterns of biomass and nitrogen accumulation
R.J. Troedson, R.J. Lawn, D.E. Byth and G.L. Wilson (St. Lucia, Qld., Australia) 171
Response of field-grown soybean to saturated soil culture. 2. Effect of treatments to alter photosynthesis and leaf nitrogne supply
R.J. Troedson, R.J. Lawn, D.E. Byth and G.L. Wilson (St. Lucia, Qld., Australia) 189
Effect of different inter-row spacings on faba beans of different form
C.J. Pilbeam, P.D. Hebblethwaite and A.S. Clark (Loughborough, Great Britain) 203
Water relations, nitrogenase activity and root development of three grain legumes in response to soil water deficits
J.D. Devries, J.M. Bennett, S.L. Albrecht and K.J. Boote (Gainesville, FL, U.S.A.) 215
Breeding upland cotton for resistance to the tarnished plant bug
M.R. Milam (Winnsboro, LA, U.S.A.), J.N. Jenkins, J.C. McCarty Jr. and W.L. Parrott (Mississippi State, MS, U.S.A.) 227
Water-stress effects on the carbon exchange rates of three upland cotton (*Gossypium hirsutum*) cultivars in the field
I. Puech-Suanzes, T.C. Hsiao (Davis, CA, U.S.A.), E. Fereres (Cordoba, Spain) and D.W. Henderson (Davis, CA, U.S.A.) 239
Phosphorus efficiency in wheat – a useful selection criterion?
G.P.D. Jones, G.J. Blair and R.S. Jessop (Armidale, N.S.W., Australia) 257
Nitrogen fertilizer balance of irrigated wheat grown on a red-brown earth in southeastern Australia
C.J. Smith, D.M. Whitfield, O.A. Gyles and G.C. Wright (Tatura, Vic., Australia) 265
Effect of 12 years' rice/wheat cropping sequence and fertilizer use on soil properties and crop yields in a sodic soil
A. Swarup and K.N. Singh (Karnal, India) 277

Short Communications

Genetic improvement in bread wheat (*Triticum aestivum*) yield in Argentina
G.A. Slafer and F.H. Andrade (Buenos Aires, Argentina) 289
Contribution of weather variables to genotype × environment interaction in soybean
M.S. Kang, B.G. Harville and D.P. Gorman (Baton Rouge, LA, U.S.A.) 297

Book Reviews

Field crop experimentation 301
Induced mutations in grain legumes 303

Biomathematics in plant cultivation 303
Author Index 305

Subject Index 308
Contents of *Field Crops Research*, Vol. 21 313